

ABSTRACT OF THE DISCLOSURE

The invention relates to a computer-based method and system to facilitate quality control for manufactured assemblies based on computer aided design (CAD) files. The instant invention mitigates the problems encountered with large CAD files by decomposing each of such files into a multi-file format. A large CAD file is thereby broken-down into smaller files that organize the information contained in the larger file. The organization is performed in such a way that the information pertinent to the measurement process is segregated into a different smaller file than the information not needed to calculate measurements. Thus, the computer running the computation accesses a smaller file containing a higher percentage of required information. Additionally, assisting the user in coordinating a match-up between the physical surfaces being measured and the proper associated CAD model version of that surface further increases the handling speed. In particular, the instant invention uses selection regions for each surface. A selection region consists of the representation of a three-dimensional rectangle region just large enough to enclose each individual surface. A selection region indexes each surface. Thus, when a measurement point is taken, a list of surface regions is automatically scanned in order to determine which region contains that point. The corresponding distance of that measurement point to the surface is then calculated.